



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

RECENT BOOKS AND PAMPHLETS. — A Report on the Invertebrate Cretaceous and Tertiary Fossils of the Upper Missouri Country. By F. B. Meek. (U. S. Geological Survey of the Territories, F. V. Hayden in charge.) Washington, D. C. 1876. 4to, pp. 629. 45 plates.

A Monograph of the Geometrid Moths or Phalaenidæ of the United States. By A. S. Packard, Jr. (U. S. Geological Survey of the Territories, F. V. Hayden in charge.) Washington, D. C. 1876. 8vo, pp. 607. With 13 plates.

On the Geology of Portions of our Western Territory visited in the Years 1871, 1872, and 1873. By G. K. Gilbert. (Extracted from vol. iii. of the U. S. Engineers' Reports of Explorations and Surveys west of the 100th Meridian, Lieut. G. M. Wheeler in charge.) Washington. 1876. 4to, pp. 20-187, 506-681.

Report on the Geology of Portions of our Western Territory visited in the Years 1872 and 1873. By Edwin E. Howell. (Extracted from vol. iii. of the U. S. Engineers' Reports, etc.) Washington. 1876. 4to, pp. 231-301.

Birds of Southwestern Mexico, collected by F. E. Sumichrast. Prepared by G. N. Lawrence. (Bulletin of the U. S. National Museum, No. 4.) Washington, D. C. 1876. 8vo, pp. 56.

Classification of the Collection to illustrate the Animal Resources of the United States, etc. By G. Brown Goode. (Bulletin of the U. S. National Museum, No. 6.) Washington, D. C. 8vo, pp. 126.

Zur Naturgeschichte der Daphniden. Von Dr. A. Weismann. I. Ueber die Bildung von wintereiern bei *Leptodora hyalina*. Leipzig. 1876. 8vo, pp. 64. 3 plates.

Report on the Geology and Gold Fields of Otago. By F. W. Hutton and G. H. F. Ulrich, etc. Dunedin. 1875. 8vo, pp. 244.

On a New Crinoid from the Cretaceous Formation of the West. By George B. Grinnell. (From the American Journal of Science and Arts, xii. July, 1876.) 8vo, pp. 3.

Contributions to the Flora of Iowa; a Catalogue of the Phænogamous Plants. By J. C. Arthur. Charles City. 1876. 8vo, pp. 43.

Taxidermy without a Teacher. By Walter P. Manton. Illustrated. South Framingham, Mass. 1876. 12mo, pp. 41. 50 cents.

Annual Report of the Entomological Society of Ontario, etc. Toronto. 1876. 8vo, pp. 54.

The Mineral Wealth, Climate and Rainfall, and Natural Resources of the Black Hills of Dakota. By W. P. Jenney. Washington, D. C. 1876. 8vo, pp. 71.

GENERAL NOTES.

BOTANY.¹

NOTES ON ACNIDA. — Dr. John Mitchell, one of the very earliest of our botanists, in a zoölogical and botanical memoir which he sent from Virginia in 1741 to Sir Hans Sloane, in London, and which Sloane had published soon after in *Acta Acad. Nat. Cur.*, at Nuremberg, characterized the genus *Acnide*. Linnæus, in adopting it, changed the orthography to *Acnida*, for no reason which would now be thought sufficient; but the difference is unimportant. *Acnida cannabina* was the sole Linnæan species.

In Michaux's Flora a second species was characterized, *A. rusocarpa*, with obtuse-angled rugose fruit. This specific name was somewhat puzzling. Willdenow took it for a misprint of *rusocarpa*; but Sprengel

¹ Conducted by PROF. G. L. GOODALE.

saw that it was meant to refer to the rugose fruit, and therefore should have been written *rhyssocarpa*.

The essential characters of the genus are: flowers diœcious; the female achlamydeous.

The true *Acnide* are subarctic and have a pretty large and indehiscent utricle, which is somewhat fleshy when fresh. Our botanists on the whole have failed to make out more than one species.

Moquin-Tandon, in De Candolle's *Prodromus*, in 1849, added a section, *Montelia*, with a more membranaceous, utriculate, and smaller fruit, under which he placed two species, *A. tuberculata*, a new one, and *A. ruscocarpa*, which he took for Michaux's of that name; but the plant he describes is not the one figured in Michaux's *Flora*, and I suppose is not distinct from Moquin's own *A. tuberculata*. This belongs mainly to the banks of rivers and lakes.

When I published the second edition of my *Manual of the Botany of the Northern United States*, I had in cultivation, from Fendler's seeds, the *Amarantus tamariscinus* of Nuttall, which I saw had the characters of *Acnida*, sect. *Montelia* of Moquin-Tandon, except that the utricle was circumscissile in the manner of a true *Amarantus*. Whereupon, having adopted *Euxolus*, I followed up Moquin's hint, and set up *Montelia* as a genus, upon what I took to be one polymorphous species; having, by a sad oversight, confounded Moquin's *Montelia*, which has a small and indehiscent utricle, with my *M. tamariscina*, the utricle of which dehisces transversely, and which likewise has far more slender fertile inflorescence.

While correcting this gross mistake, I wish also to direct the attention of our botanists this summer to the coast species of *Acnida*, and to request that specimens be prepared, and also critically examined when fresh, with the view of soon determining whether I am justified in my belief that we have three genuine species on the Atlantic coast, or within reach of tidal water. If my present opinion is well founded as to the species, and as to the extent of the genus, the arrangement should be somewhat as follows:—

ACNIDA (*Acnide* Mitchell) Linn.

(1.) EUACNIDE. Utricle somewhat fleshy, indehiscent, large, *i. e.*, one and a half to two lines long.

A. RHYSSOCARPA, alias RUSOCARPA Michx. Fertile inflorescence very naked; the bracts not half the length of the fleshy utricle, the angles of which are not rarely rugose-tuberculated; stigmas comparatively short and slender-subulate. Salt marshes, New England to Georgia.

A. CANNABINA L. Fertile inflorescence slender or sometimes glomerate; utricle thinner and smaller, with acute and smooth angles, much exceeding the bracts; stigmas very long and filiform, almost plumosely hairy. Salt marshes and river-banks even beyond brackish water, New England to Georgia, West Indies (?), etc.

A. AUSTRALIS, n. sp. (*A. cannabina* Chapman, S. Flora.) Panicked spikes of the fertile inflorescence dense, linear-cylindrical; utricle smooth, thin, hardly at all fleshy, acute-angled, little if at all exceeding the imbricated bracts; stigmas setaceous, rather short. Florida, at Apalachicola, Dr. Chapman; Biscayan Bay, Dr. Palmer, coll. no. 462.

(2.) *MONTELIA* Moquin-Tandon. Utricle thin and small (half to two thirds of a line long), punctate-rugose or roughish, indehiscent), equaled or exceeded by the cuspidate-tipped bracts; stigmas slender, filiform, almost plumosely hairy.

A. TUBERCULATA Moquin-Tandon, in DC. Prodr. *A. rusocarpa* Moquin-Tandon, l. c., not of Michx. *A. cannabina* var. *concatenata* Moquin-Tandon, l. c. *Amarantus Miamensis* Riddell, synopsis. *Montelia tamariscina* Gray, Man., Bot. ed. 2, 370, and ed. 5, 413, partly, especially the var. *concatenata*. River-banks, shores, etc., in the interior. Lake Champlain to Iowa and Texas. Sometimes erect, and from one to four feet high, sometimes spreading or prostrate in sandy or gravelly soil.

(3.) *PYXIDI-MONTELIA*. Utricle thin and small, shorter than the cuspidate-tipped bracts, circumscissile in the manner of true *Amarantus*; fertile inflorescence in slender virgate paniculate spikes, less glomerate than in the preceding; stigmas similar or shorter.

A. TAMARISCINA. *Amarantus tamariscina* Nutt., in Trans. Am. Phil. Soc., n. ser., v. 165. *Montelia tamariscina* Gray, l. c., in part. Arkansas to Texas and New Mexico.

Our botanists along and near the seaboard are particularly requested to examine the species they meet with, and to send good fruiting specimens to the writer. The distinctions between *A. cannabina* and *A. rhysocarpa* should be especially looked after. The fruit of the former is hardly to be found in any of our larger herbaria. Florida specimens of any *Acnida* are much desired. So also are fertile specimens of any from Arkansas and Texas, especially of *A. tamariscina*. Nuttall's specimens of this are not even in flower, so that he was unaware that the plant was diœcious and the fertile flowers achlamydeous. Although the plant is common in Texas, ripe fruit is little known. — ASA GRAY.

LARGE ELM. — In the second and admirably illustrated edition of Mr. Emerson's classical report on the trees and shrubs of Massachusetts, most of the notable elms in the State are enumerated, and measurements given. But one of the noblest, though by no means the largest, of them, to which the writer was recently introduced, is not upon the record. It is in Boxford, Essex County, not far from the eastern border of Andover, a stately tree, with a girth of nineteen feet at the smallest part of the trunk below the limbs, and a full top in good condition, except that a few of the uppermost limbs are perishing in the manner of the species. — ASA GRAY.

CALLUNA VULGARIS, THE LING OR HEATHER, REDISCOVERED IN MASSACHUSETTS. — The now well-known patch of *Calluna* in Tewksbury,

which was discovered by Mr. Jackson Dawson nine or ten years ago, was then the only one known in the United States or, indeed, on the continent. Up to this time the only contradiction to the current aphorism, "There are no heaths in America," came from Newfoundland, where *Calluna* was known to occur, although few botanists had ever seen specimens. It required some hardihood, as well as a clear conception of the causes which have ruled over the actual distribution of our species in former times, to pronounce that this Tewksbury patch of heath was indigenous. The discoveries, soon afterwards, in Nova Scotia and Cape Breton still left a wide hiatus. This was partially bridged over by the detection by Mr. Pickard, a Scotch gardener, of a similar very restricted station in Maine, on Cape Elizabeth, near Portland. We have now the satisfaction of recording a second station in Massachusetts, not far from the former one. Mr. James Mitchell, of Andover, is the present discoverer, and the station is in the western part of Andover, half a mile northeast of Haggett's Pond, and five miles north of the Tewksbury station. Mr. Mitchell accidentally met with this patch last summer, when berrying, and, being a Scotchman, recognized it, took home a sprig of it, and at a subsequent visit grubbed up one or two small plants, which a neighbor still has in cultivation. A fresh branch taken by him from the wild plants this summer is now before me. It proves to be of the green and smoothish variety of *Calluna*, precisely like the Tewksbury plant. Small as the new patch is said to be, "it will serve" to confirm the opinion long ago expressed; for a second station greatly diminishes the very small chance of its having been casually or in any way introduced through human agency. It should also be noted that this station, as I am informed by the Rev. Mr. Wright, is near by an extensive glacial moraine which traverses that district, and which he has traced for a great distance northward. — ASA GRAY.

HETEROMORPHISM IN EPIGÆA. — The May-flower, being more largely gathered and brought under our notice than any other wild blossom — at least in the Atlantic States — should be well known in all the details of structure. But it hardly is so. The structure of its stigma was first well described in the fifth edition of my Manual of the Botany of the Northern United States, and the likeness to *Pyrola* suggested. I suppose that this likeness is really one of relationship, but not of a near degree, as most other points of similarity are wanting. From the difference in the stigmas of different flowers, I was disposed to think that the five lobes lengthened and protruded with age, in the manner of *Pyrola*; but this does not prove to be the case. In all cases, however, the apex of the style is as it were hollowed out or extended into a ring, with a five-crenate border, to the inner face of which the five stigmas are adnate, each before one of the small teeth or lobes, and extending sometimes slightly beyond it, but remaining short and erect, sometimes much beyond and radiately expanded.

In Michaux's Flora is the note "Flores omnes in nonnullis individuis abortivi," and botanists are generally aware that fruit is seldom met with. The flowers have been said to be unisexual (diœcious); but all appear to have well formed ovary and ovules, although some individuals were known to want the stamens. Professor Goodale, knowing a station in Maine in which *Epigæa* year after year sets fruit, kindly procured from thence a large number of fresh specimens; and these I have now examined in regard to stamens and pistil. They show the following heteromorphous condition of things.

(1.) About ten per cent. of the specimens have a style considerably longer than the stamens, raising the stigmas a little out of the throat of the corolla, in which the anthers are included: the stigmas are cylindrical, radiate like the spokes of a wheel, half a line in length, therefore strongly projecting, moist and glutinous, and evidently in good condition for fertilization. The anthers in these flowers are slender, commonly withering without dehiscence, and containing few, yet perhaps well-formed, pollen-grains. The fruiting specimens gathered at the same station in former years all evidently belong to this form, as the persistent style and long stigmas show. One or two specimens of this form manifest a disposition to convert their anthers into petals; but this is occasionally seen in other forms.

(2.) A smaller number of specimens show the stigmas of the preceding on a shorter style, sometimes so short as to place the radiating stigmas as low as the middle of the tube of the corolla, sometimes bringing it nearly up to the throat. In one instance a short-styled flower was detected in a cluster of flowers otherwise of the character of No. 1. These short-styled blossoms, instead of having more conspicuous or higher anthers than in the long-styled, bear them either at the same proportional height and in the same condition, or bear mere rudiments of anthers, or not rarely none at all, and even the filaments are smaller, abortive, or occasionally altogether wanting. This sometimes happens in No. 1 also.

(3.) The larger number of flowers, perhaps three-fourths of the specimens under examination, have the long style of No. 1, an ovary equally well-formed and ovuliferous, but either rather smaller or not going on to grow; but the stigmas are short, only slightly projecting beyond the lobes of the cup to which they adhere, in all stages erect, and comparatively smooth and dry. Their tips, however, appear somewhat papillose under a strong lens, and grains of pollen placed thereon incline slightly to adhere, yet not so much as upon the surface of the style far below, which gets well covered with pollen from the contiguous anthers. The difference between these stigmas and those of the foregoing forms is striking and constant, no gradations between them having been detected. The anthers abound with pollen, and are dehiscent at or a little before the opening of the corolla.

(4.) A considerable number of such flowers have a shorter style, so that the stigma stands as low as the base of the five longer anthers, in one or two even lower than all the anthers; otherwise all is as in No. 3, of which this seems to be a mere variation. And here also, although not very definitely, there is a tendency to having lower instead of higher anthers in connection with the short style.

The flowers of *Epigæa* may therefore be classified into two kinds, each with two modifications; the two main kinds characterized by the nature and perfection of the stigma, along with more or less abortion of the stamens; their modifications, by the length of the style. The first is leading to dioicism, the second points to dimorphism. I am not aware that either unisexual or dimorphous flowers are otherwise known in the *Ericaceæ*. Dimorphism (as exemplified in primroses, *Houstonia*, and *Mitchella*) may be regarded as the more perfect arrangement on the score of economy, as it secures cross-fertilization along with fertility of all the flowers. It would seem as if this had been attempted in *Epigæa*, but that the stamens did not respond with the requisite correlation to the long and short styles; and the same may be said of certain flowers in one or two other families. Of dichogamy, the other equally economical method, I find no indication in *Epigæa* blossoms. But they appear to be now falling back upon the remaining, less economical mode of securing the end, namely, by unisexual blossoms.

It would be interesting to know whether the small stigma forms of *Epigæa* are ever fruitful, or fully so. It might not be difficult to ascertain the kind of flower in any case which has matured fruit; for the style and stigmas persist until the capsule is well formed in the fruit thus far known.

The æstivation of the corolla is that of the tribe, imbricated, but with a strong tendency to convolute; more commonly there is only one exterior and one interior lobe.

In reproducing from the *American Journal* this account in the NATURALIST, I have a special object, that of having search made this summer for fruiting specimens of all sorts. I should be glad to receive the fruit from various parts of the country, in order to ascertain, if possible, whether the short-stigma blossoms ever set seed, — as it seems likely they may, — and whether the seeds or capsules show any differences. In collecting and preserving fruiting specimens, care should be taken not to detach the style. — ASA GRAY.

BOTANICAL PAPERS IN RECENT PERIODICALS. — *Comptes rendus*, April 24th. Boussingault, On the Growth of Plants which have no Chlorophyll. Frémy and Dehérai, Researches in regard to the Sugar Beet. May 8th. Pasteur, Notes respecting Fermentation.

Flora, No. 14. Dr. Velten, The relation of Temperature to the Movement of Protoplasma. A. de Krempelhuber, Brazilian Lichens. No. 15. Dr. Chr. Luerssen, Notice of Wawra's Vascular Cryptogams. W. Nylander, New European Lichens.

Botanische Zeitung, No. 19. W. Velten, On Electricity in Plants. No. 20. Ascheron, Phytographic notices. No. 21. Ascheron, On Malaguetta Pepper. No. 22. Areschoug, On certain Rubi. No. 23. De Borbás, Conspectus of doubtful species of *Dianthus*. No. 24. Philipi, On Sandal-Wood of Juan Fernandez. On *Primula pistiifolia*, Gris. No. 25. Reuther, On the development of the flower. No. 26. Continuation of the last. In the above numbers there are several interesting reports of scientific meetings which will be hereafter noticed.

ZOÖLOGY.

A TRUE "SNAKE STORY." — The article in the March number on "A Snake-Eating Snake" recalls to memory an incident which occurred to me last year, showing that such reptiles are found nearer home than Costa Rica. In walking through a cañon about two miles east of Oakland, Cal., one spring morning, I met with a fine specimen of the California milk-snake (*Lampropeltis Boylii*, figured in Pacific Railroad Report as *Coronella balleata*, x. 14, Plate V). Having disabled it by a blow across the back, I wrapped it in paper and put it in a bag, intending, when I sat down to rest, to skin it, and to examine the contents of its much-distended stomach. About noon I opened the paper and was not a little startled to find that my milk-snake, so strongly characterized by alternating belts of black and white, was apparently transformed into a garter-snake of about the same size, with longitudinal stripes.

The first impression was that I had got hold of one of the deceiving tribes of the "old serpent" himself, but recalling the scientific coolness with which Cuvier is said to have confounded him when under the disguise of horns and hoofs, I ventured to look closer, and found that the garter-snake must have been swallowed whole by the milk-snake, which, on recovering from the stunning blow I gave, had disgorged its prey, and then succeeded in crawling through a hole in the bag. All this would not have seemed so strange if the two snakes had not been so nearly of a size that I did not at first notice any difference. As I recollect, the garter-snake was over two feet long, but being damaged, and a common species, I did not preserve it. I had not captured any of the kind recently, nor any other snake except the milk-snake. — J. G. COOPER, M. D.

"THE BANK SWALLOW" AGAIN. — Regarding the instance in which Dr. Haymond observed a "bank swallow" carry building material into an auger hole, as communicated to the June number of the *NATURALIST* by Dr. Coues, it may be fairly questioned whether the species was not the rough-winged swallow (*Stelgioöpteryx serripennis*), which is much more common in many parts of the country, particularly in the Mississippi Valley, than the other species. The habits and appearance of the two birds are so similar that they are very often confounded, even by good and experienced observers; besides, it is well known that the rough-wing